

What is claimed is:

1. A surgical instrument, comprising:  
a shaft having distal and proximal ends, said shaft defining at least one lumen having at least one aspiration opening at said distal end;  
5 an active electrode disposed at the distal end of said shaft, said active electrode defining an energy application surface and electrically coupled to a power source; and  
a return electrode coupled to the power supply such that a current path from said active electrode to said return electrode passes over said aspiration opening.  
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2. The surgical instrument of Claim 1, wherein negative pressure applied to said lumen causes matter to be aspirated through said aspiration opening.
3. The surgical instrument of Claim 1, wherein said aspiration lumen comprises  
15 at least one opening at said distal end that is configured to prevent clogging of aspirated matter at said distal end.
4. The surgical instrument of Claim 3, wherein said aspiration opening is defined by said active electrode.  
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5. The surgical instrument of Claim 4, wherein said aspiration opening is configured to provide an electrical and mechanical effect.
6. The surgical instrument of Claim 1, wherein said active electrode defines a  
25 current crowding edge energy application surface.
7. The surgical instrument of Claim 1, wherein said active electrode defines a substantially planar external energy application surface.  
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8. The surgical instrument of Claim 1, wherein said active electrode comprises a mesh having interstices in communication with said aspiration lumen such that aspiration may occur through said interstices of said active electrode.
- 35 9. The surgical instrument of Claim 8, further comprising a ring of conductive, non-perforated material surrounding said mesh and providing structural support thereto.

10. The surgical instrument of Claim 1, wherein said active electrode comprises a disc surface having perforations formed therethrough, said perforations permitting aspiration to occur through said active electrode.

11. The surgical instrument of Claim 1, wherein said active electrode is concentrically disposed at said distal end of said shaft to define an energy application surface.

12. The surgical instrument of Claim 11, wherein the return electrode is located on an exterior body tissue site.

13. The surgical instrument of Claim 11, wherein said return electrode is formed as a ring around the distal end of said shaft and said active electrode is disposed within said ring.

14. The surgical instrument of Claim 1, wherein said active and return electrodes are connected to first and second conductors, respectively.

15. The surgical instrument of Claim 14, wherein one of said first and second conductors is formed from said shaft.

16. The surgical instrument of Claim 15, wherein the proximal end of said shaft is mounted to a handle, said handle providing at least one connection for said conductor to a power supply and a connection for said aspiration lumen to a vacuum source.

17. A surgical instrument, comprising:  
a shaft having distal and proximal ends, said shaft defining at least one aspiration lumen extending therethrough and having an aspiration opening at said distal end;  
an active electrode disposed at said distal end of the shaft, said active electrode defining an energy application plane across said aspiration opening and having a plurality of openings therethrough communicating with the aspiration lumen such that material may be aspirated through said active electrode across said energy application plane, said plurality of openings being individually sized and configured to avoid clogging of aspirated matter downstream of said openings; and  
a return electrode electrically coupled to said power source.

18. The surgical instrument of Claim 17, wherein said return electrode is located external to the surgical site on a patient's body.

19. The surgical instrument of Claim 17, wherein said return electrode is  
5 disposed on said shaft proximally from said active electrode.

20. The surgical instrument of Claim 17, wherein said active electrode comprises a mesh having interstices which define said plurality of openings in communication with said lumen such that aspiration may occur through said interstices of said mesh.  
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21. The surgical instrument of Claim 17, wherein said active electrode comprises a disc having perforations therethrough to form said plurality of opening such that aspiration may occur through said perforations.

22. A surgical instrument, comprising;  
15 a shaft having distal and proximal ends, said shaft defining an aspiration lumen having a diameter extending therethrough and having an opening at said distal end;  
a conductive member disposed at said distal end of said shaft across said aspiration lumen to define an energy application plane across said lumen opening and  
20 forming an active electrode, said conductive member having at least one opening therethrough communicating with the aspiration lumen such that material may be aspirated through said active electrode across said energy application plane, said opening being individually smaller than said lumen diameter to avoid clogging of aspirated material downstream of said opening;  
25 a first conductor connected to said conductive member;  
a return electrode disposed around said shaft proximally from said active electrode; and  
a second conductor connected to said return electrode.

23. The surgical instrument of Claim 22, wherein one of said first and second conductors is formed by said shaft.  
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24. The surgical instrument of Claim 22, wherein said lumen has an insulative  
35 coating.

25. The surgical instrument of Claim 22, wherein said conductive member is a disc.

26. The surgical instrument of Claim 22, wherein said conductive member is an ashtray.

27. A surgical instrument, comprising:  
a shaft having a proximal end and a distal end with a longitudinal axis;  
an active electrode and a return electrode disposed on the distal end and  
connected to the distal end to define an energy application surface at said distal end  
generally transverse to said longitudinal axis; and  
a connector disposed near said proximal end of said shaft for electrically  
coupling said electrodes to a power source such that a voltage may be applied between each  
of the electrodes.

28. The surgical instrument of Claim 27, wherein said active electrode and return electrode lie in substantially the same plane to define a planar energy application surface at said distal end.

29. The surgical instrument of Claim 27, wherein a first of said electrodes is disposed centrally on the distal end of said shaft and the second of said electrodes is a ring disposed around the first electrode.

30. The surgical instrument of Claim 27, wherein said electrodes are arcuate in shape and are each disposed around a portion of the distal end of the shaft, lying in substantially the same plane approximately transverse to the longitudinal axis.

31. The surgical instrument of Claim 27, wherein said shaft defines an aspiration lumen therethrough and the distal end of the shaft defines at least one opening between said active and return electrodes communicating with the aspiration lumen for aspirating material through the energy application surface.

32. The surgical instrument of Claim 31, wherein the active electrode is located on a distal tip portion of the distal end and the return electrode is located on an internal portion of the aspiration lumen and proximal to the active electrode.

33. The surgical instrument of Claim 31, wherein said first electrode and second electrode are electrically isolated.

34. The surgical instrument of Claim 27, wherein said shaft is substantially  
5 cylindrical having a periphery and said arcuate electrodes are disposed on the periphery of said shaft and the distal end, said electrodes being separated by at least one notch in said shaft.

35. The surgical instrument of Claim 27, wherein said shaft defines an aspiration  
10 lumen therethrough and said distal end of the shaft defines at least one opening between the active electrode and the return electrode communicating with said aspiration lumen for aspirating matter through said energy application surface.

36. A method of electrosurgically treating tissue at a surgical site, comprising:  
15 positioning an energy application surface adjacent or in contact with tissue to be treated;  
applying energy across said application surface to the treatment area;  
aspirating matter generation as a result of the energy application through the  
energy application surface; and  
20 applying energy to the aspirated materials passing through the energy application surface.

37. The method of claim 36, wherein said energy is radiofrequency energy.

38. The method of claim 36, wherein said energy application surface is formed  
25 on the distal end of a surgical instrument.

39. The method of claim 36, wherein said energy application surface is defined  
30 by an active electrode.

40. The method of claim 36, wherein said aspirating step occurs over a  
non-uniform plane creating a differential suction of a blockage across the energy application  
surface to facilitate aspiration of the blockage through the energy application surface.

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